After an 8.9 magnitude earthquake led to a shutdown of 10 Japanese nuclear reactors and a continuing state of emergency, energy groups are beginning to question the safety of nuclear power.

Disaster is "not as inconceivable as it sounds," said Dave Kraft of the Nuclear Energy Information Service, a nuclear power watchdog group. "Nuclear power plants in seismically active areas are going to be extremely vulnerable to this kind of major disruption," he said in a prepared statement. "That's not even looking at possible future effects from tsunamis resulting from the earthquakes. Whatever has already happened must clearly be possible. Japan failed to learn this lesson in creating a rigid reliance on nuclear power."

Kraft said nations in high-seismic areas are prone to service disruptions and are at greater risk for accidents and possible radiation releases. "Yet, even in the U.S. we have the president and congressional nuclear allies prepared to squander tens-of-billions of dollars on loans and loan guarantees for new nuclear plants that already will provide power at rates higher than solar energy," he continued in the statement.

But Calvert Cliffs Nuclear Power Plant, where a third reactor is proposed for 2015, was built to withstand natural disasters and should remain safe, said plant spokesman David Fitz.

"Plant operators undergo regular training for a variety of unusual events. [Constellation Energy Nuclear Group] plants are designed to withstand significant seismic events based on seismic history in our geographic area," Fitz said. "Nuclear plants are designed and constructed in accordance with national codes and NRC requirements.

"We also have emergency response plans in place, which are approved at the federal, state and local government agencies," he continued. "The plans have detailed procedures, which are routinely reviewed and used in training of our personnel. We have routine training exercises to test our ability to effectively implement our plan and are formally evaluated by the NRC."

A third reactor at Calvert Cliffs would produce 1,600 megawatts of power, enough to power about 1.3 million Maryland homes. Currently, there are 104 nuclear reactors operating at 66 power plants in the U.S. and the Nuclear Regulatory Commission is reviewing applications for 15 more, according to the U.S. Energy Information Administration.

Local officials are backing the Calvert Cliffs expansion because it would create 4,000 construction jobs and 400 permanent positions as well as add to the county's overall tax base.

In the latest annual assessment of the plant, which was released March 4, the NRC commended Calvert Cliffs for operating through 2010 "in a manner that preserved public health and safety and met all cornerstone objectives." All of the NRC inspectors' findings at the plant were in the "green," or low safety significance category; one "white," or low to moderate safety finding, was found in February 2010, but the appropriate corrective actions were taken, according to the report.

CENG's three sites and four of the five nuclear power reactors in Maryland and New York continue to operate safely, reliably and efficiently, Fitz said. Calvert Cliffs Unit 2 is in its scheduled refueling and maintenance outage.

Meanwhile, as the world feels the effects of the Japanese disaster, Fitz said CENG remains in discussions with industry leaders, including U.S. nuclear utilities, the U.S. Nuclear Regulatory Commission, the Nuclear Energy Institute, Electric Power Research Institute, the Institute of Nuclear Power Operations and World Association of Nuclear Power Operations.

"We are monitoring the situation in Japan closely," he said. "Our thoughts and prayers are with those impacted by this tragedy."

Japanese officials have been evacuating parts of the country as radiation spreads. The evacuation radius — or the area that would be evacuated in the event of a disaster — for Calvert Cliffs is 10 miles. Japan's evacuation radius is now 12.5 miles according to the country's prime minister, and Mark Volland, spokesman for Calvert County government, said the local evacuation radius could change, based on the determination of local, state and federal health

officials. "There will likely be a re-evaluation across the globe."

The confirmed release of radioactive material from the Fukushima Daiichi, about 135 miles northeast of Tokyo, should be a wake-up call for American politicians and policymakers, said Paul Gunter, director of the Reactor Oversight Project for Beyond Nuclear, an anti-nuclear advocacy group based in Takoma Park.

"What's clear is that the nuclear accidents in Japan have identified that in the event of natural disaster or national crisis, nuclear power is more of a liability than it is an asset," he said.

Others say that's an overreaction to a tragic incident that would be highly unlikely to occur on the East Coast, close to Calvert Cliffs.

"I would caution people not to make snap judgments," said House Minority Leader Anthony J. O'Donnell (R-Calvert, St. Mary's), whose district includes Calvert Cliffs. "The crisis in Japan is still occurring, so let's let the crisis be brought under control and be stabilized and then be appropriately evaluated before we rush to judgment."

In 2009, current U.S. House of Representatives Minority Whip Steny H. Hoyer (D-Md., 5th) sponsored homeland security legislation that granted $338,000 in 2010 for the creation of an alternative emergency operations center to ensure safety in Calvert County, which included the power plant. The funding enabled the plant to meet federal guidelines for emergency preparedness.

"The security of Calvert Cliffs Nuclear Power Plant is a high priority for the county and the region," Hoyer said at the time. "We have a responsibility to help protect our communities and provide for the safety and security of our citizens."

A vehement proponent of securing funding for a third Calvert Cliffs unit, Hoyer said he does not feel thwarted by the events in Japan but hopes to continue analyzing them.

"There is no question that the situation in Japan is very serious and certainly raises concerns for communities with reactors here in the U.S.," Hoyer said in a prepared statement. "The U.S. has long required reactors to be designed to withstand weather, seismic and tsunami events, and accompanying power losses, including at reactors like those currently operating at Calvert Cliffs that do not have the same seismic history as Japan."

Hoyer said the NRC should continue its analysis of the Japanese disaster, identify lessons learned and incorporate them into the design and operation of U.S. plants.

"They will have the opportunity to do so, and I believe they should, as they evaluate and approve the new reactor design proposed for a third reactor at Calvert Cliffs," he said. The design to which Hoyer alludes is that of the AREVA Evolutionary Power Reactor, a global venture to construct a "nuclear renaissance," as many nuclear energy activists describe the movement.

NRC spokesman Neil Sheehan said that design incorporates additional safety features, including two additional backup emergency generators.

But CC1 and 2 already were built to withstand the maximum possible seismic activity of the region, and in recent years, the NRC has looked at further data from improved computer modeling of earthquake activity to assess which U.S. plants need to be upgraded.

"Calvert Cliffs was not on the list of plants determined to come in for additional measures," Sheehan said. "We're satisfied … and they're built with very robust structures that are capable of withstanding a lot."

The most robust structure is the containment area, which contains several feet of nearly impenetrable protective wall, he said.

"Japan was obviously faced with a very unique set of circumstances," Sheehan said.

"The plant lost its offsite power and then, to compound matters, the tsunami damaged the backup diesel generators."

In the 1980s, the NRC looked at just such a scenario, he said. "As a result of our regulations, plants also did an analysis of how they would cope with some of that. Some of the plants had to make changes. So it's an issue that's gotten a lot of attention," Sheehan said.

While routine unscheduled inspections will continue at Calvert Cliffs, the NRC has released its list of scheduled inspections at the plant, which can be found online at nrc.gov.

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Staff writer Alan Brody contributed to this report.